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ABSTRACT

This report presents findings from the survey, Nutrition Education in U.S. Public Schools, Elementary Teacher Survey, K-5, which followed a federal initiative to improve the quantity and quality of nutrition education in public elementary classrooms. Survey results indicated that 52 percent of elementary teachers had formal training to teach about nutrition. Most teachers reported high availability of resources to support nutrition education (e.g., healthy cafeteria meals, reference materials, support for use of instructional time, and written policies or guidelines). Most reported that they taught lessons to their students about nutrition. About one-third of those who taught nutrition taught it as a separate subject, and about one-third integrated nutrition lessons into other subjects. The mean number of hours teachers spent on nutrition education in a school year was 13. Teachers used active learning strategies and did not rely on traditional lecturing methods. About one in four teachers reported their instructional materials were of high quality. Teachers with higher levels of support from their schools, and teachers with college training on nutrition education utilized family involvement strategies more often. Three appendixes provide survey methodology and data reliability, tables of standard errors, and the survey form. (SM)

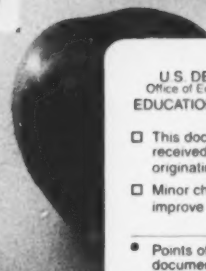
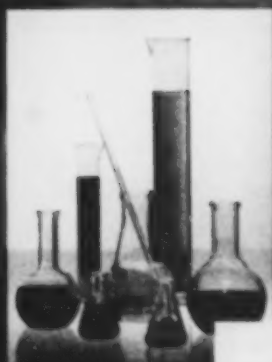
ED 439 116

NATIONAL CENTER FOR EDUCATION STATISTICS

Statistical Analysis Report

February 2000

Nutrition Education in Public Elementary School Classrooms, K-5



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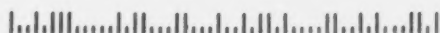
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NATIONAL CENTER FOR EDUCATION STATISTICS

Statistical Analysis Report

February 2000

Nutrition Education in Public Elementary School Classrooms, K-5



Carin Celebuski
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**U.S. Department of Education
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Highlights

- About half of elementary school teachers (52 percent) have had formal training to teach about nutrition (figure 2).
- With a few exceptions, teachers generally reported high availability of resources in support of nutrition education, including healthy cafeteria meals (82 percent), reference materials (74 percent), support for use of instructional time (70 percent), and a written policy or guidelines (57 percent) (table 3). Fewer teachers reported availability of high-quality inservice training in nutrition education (27 percent) and a coordinated school nutrition policy (37 percent). By region, teachers from the Southeast reported greater availability of both these resources than teachers from other regions.
- Despite research indicating the importance of the resources noted above, teachers do not view access to these resources as the only thing needed to improve nutrition education (table 4). About 30 percent of teachers indicated that healthy school cafeteria meals, support for use of instructional time, and reference materials at school would improve nutrition education to a great extent. About one-fifth indicated that high-quality inservice training would improve it to a great extent.
- Eighty-eight percent of elementary school teachers reported that they taught lessons about nutrition to their students in the 1996-97 school year (table 5). More kindergarten through second-grade teachers (92 percent) taught nutrition than did third- through fifth-grade teachers (83 percent).
- Approximately one-third of teachers (35 percent) who taught nutrition taught it as a separate subject, and about the same proportion integrated nutrition lessons to a great extent into health and physical education (39 percent) and science (33 percent) (tables 6 and 7). Fewer of these teachers integrated nutrition lessons to a great extent into reading and language arts (14 percent), history and social studies, and mathematics (4 and 5 percent, respectively).
- The mean number of hours spent in a school year on nutrition education by elementary school teachers who taught nutrition was 13, below the minimum of 50 hours thought to be necessary for impact on behavior (table 5).
- Teachers reported they employed active learning strategies and did not rely exclusively on traditional lecturing methods for nutrition education. Active learning strategies, such as active discussion (57 percent), hands-on learning (29 percent), and collaborative work (27 percent), were used to a great extent by the most teachers (table 8). Teachers of grades K-2, teachers with higher levels of support for nutrition education from their schools, and teachers with college training in nutrition education were all more likely to use some active learning strategies to a moderate or great extent in their nutrition instruction (table 9).

- While about half (48 percent) of elementary school teachers who teach nutrition reported no barriers to cooperation with their school meals program staff in providing nutrition education (table 12), those who did report barriers tended to focus on the following: lack of instructional time and time on the part of the meals program staff, being unsure of what activities are possible, and difficulty of schedule coordination between teachers and meals program staff.
- Teachers with higher levels of support from their schools, and teachers with college training in nutrition education utilized family involvement strategies for nutrition education more often than teachers with lower levels of support and those with no training, respectively (table 14). For example, teachers with high levels of support were more likely to include parents in nutrition homework assignments (85 percent) compared to teachers with low levels of support (66 percent); and teachers with college coursework in nutrition education were more likely to include parents in nutrition homework assignments (22 percent) compared to teachers with no training (48 percent).
- When teachers who taught nutrition were asked whether the instructional materials they used were of high quality, about one in four said they were up to date to a great extent (24 percent), 41 percent said that they were age appropriate to a great extent, and 23 percent said that they were appealing to students to a great extent (table 15). About one in five reported having enough materials for all their students to a great extent (21 percent), and about the same proportion (19 percent) reported that they did not have enough materials for all students.

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Introduction

The impact of diet on health has been described and documented in numerous studies and reports. Dietary recommendations and long-term health objectives, including the *Dietary Guidelines for Americans*¹ and the Year 2000 Health Objectives for the Nation,² call for Americans to reduce intake of total fat, saturated fat, and cholesterol; increase intake of fruits, vegetables, grain products, and foods rich in calcium; and moderate intake of sugars, salt, and alcohol.

Many Americans consume excess calories for their level of activity, and have diets inconsistent with the *Dietary Guidelines for Americans*—too high in fat, sodium, and sugar, with not enough grains, fruits, and vegetables. These unhealthy eating patterns may contribute to illness and premature death in the long term.³ Because eating habits developed in childhood have the potential to last a lifetime, it is important for children to learn the benefits of good nutrition. *Healthy People 2000* states as a national health objective that by the year 2000, at least 75 percent of the nation's schools will provide nutrition education from preschool through 12th grade.

Thus far, there has been little national-level information available about the quantity and quality of nutrition education in schools. In 1996, the National Center for Education Statistics (NCES) published results from the Fast Response Survey System (FRSS) study *Nutrition Education in U.S. Public Schools, K-12*.⁴ That study provided information from a nationally representative sample of public schools about the placement of nutrition education in the curriculum, the content of nutrition instruction, the coordination of nutrition education within the school, and the need for resources for nutrition education. Still, there was a need for data to address questions concerning the amount of nutrition instruction in classrooms and the potential effectiveness of that instruction.

This report presents findings from the survey *Nutrition Education in U.S. Public Schools, Elementary Teacher Survey, K-5*, requested by the Food and Nutrition Service of the U.S. Department of Agriculture (USDA). It was designed as a followup to the 1996 school study to obtain data on nutrition education in elementary school classrooms to inform current and future USDA initiatives, including the School Meals Initiative for Healthy Children.⁵ This initiative, begun in 1995, adds requirements for schools to serve meals that meet federal dietary guidelines and encourages schools to

¹ U.S. Department of Agriculture and U.S. Department of Health and Human Services. *Dietary Guidelines for Americans*. Home and Garden Bulletin No. 232. Fourth Edition, 1995.

² U.S. Department of Health and Human Services. Public Health Service. *Healthy People 2000: National Health Promotion and Disease Prevention Objectives*. (PHS) 91-50212, 1991.

³ Ibid, p. 112.

⁴ U.S. Department of Education, National Center for Education Statistics. *Nutrition Education in U.S. Public Elementary and Secondary Schools*, NCES 96-852, by Carin Celebuski and Elizabeth Farris, Judi Carpenter, project officer. 1996.

⁵ Part of the implementation of the National School Lunch Program. 7CFR Parts 210 and 220.

teach children about nutrition so they are motivated to make healthy food choices. A pilot program for schools, called Team Nutrition, aims to improve nutrition education in classrooms. The self-administered mail survey requested information about the following issues:

- Resources and policies for nutrition education,
- Nutrition education in the classroom,
- Working with the school meals program staff,
- Working with parents,
- Instructional materials for nutrition education, and
- Training in nutrition education.

The goal of this study was to provide a national picture of the quantity and quality of nutrition education in public elementary school classrooms.

Previous research in nutrition education was used to inform our analysis. In reviews of research about nutrition education published in a special issue of the *Journal of Nutrition Education*,⁶ several of the major researchers in this field describe both characteristics of high-quality nutrition education (i.e., effective at changing knowledge, attitudes, and behaviors) for school-aged children and the effects of training in nutrition education on teachers. According to the authors, the following elements appear to contribute to the effectiveness of nutrition education:

- Instruction with a behavioral focus, or a focus on changing specific behaviors rather than on learning general facts about nutrition;⁷
- Employment of active learning strategies instead of relying exclusively on information dissemination and didactic teaching methods;⁸
- Devotion of adequate time and intensity to nutrition education (it appears to take 50 hours per year to impact attitudes and behavior);⁹
- A family involvement component;¹⁰
- A meals program and food-related policies that reinforce classroom nutrition education;¹¹ and

⁶ *Journal of Nutrition Education*. (Special Issue) "The Effectiveness of Nutrition Education and Implications for Nutrition Education Policy, Programs, and Research: A Review of Research." 27(6) (November-December 1995).

⁷ Leslie A. Lytle, "Nutrition Education for School-aged Children." *Journal of Nutrition Education*, 27(6) (November-December 1995):306.

⁸ *Ibid.*, 306.

⁹ *Ibid.*, 307.

¹⁰ *Ibid.*, 307.

¹¹ *Ibid.*, 308.

- Teachers with adequate training in nutrition education¹² (training appears to have a positive effect on the quality of nutrition education, but less so on the quantity¹³).

The FRSS elementary teacher survey of nutrition education was conducted in the spring of 1997 by Westat, a research firm in Rockville, Maryland. The questionnaires were sent to a nationally representative sample of 1,409 kindergarten through fifth-grade teachers at U.S. public schools (see appendix A for a description of the survey methodology). Elementary teachers of grades kindergarten through fifth were selected as respondents because they are more likely to teach the same group of students for the whole school day (self-contained classes), making it possible to measure the amount and type of nutrition instruction occurring in elementary classrooms nationwide. These elementary school teachers averaged 14 years tenure and were distributed fairly evenly in grades kindergarten through fifth (table 1).

Table 1.—Mean years teaching and grades taught by public elementary school teachers, K-5, who taught self-contained classes: 1997

Characteristic	Mean number or percent
Mean number of years teaching at the elementary school level.....	14
Grade or grades taught	
Kindergarten.....	15%
Grade 1.....	22
Grade 2.....	19
Grade 3.....	20
Grade 4.....	17
Grade 5.....	15

NOTE: Teachers could report teaching more than one grade, so percents do not sum to 100.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System. "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K-5," FRSS 60, 1997.

Survey findings are presented for all schools, and frequently by the following characteristics:

- The instructional level of the teacher (kindergarten-second, third-fifth grades),
- The school enrollment size (less than 300, 300-499, 500 or more students),
- The geographic region of the school (Northeast, Southeast, Central, West),

¹² Lytle, "Nutrition Education for School-Aged Children," 310.

¹³ Christine M. Olson, "Inservice Preparation in Nutrition Education for Professionals and Paraprofessionals," *Journal of Nutrition Education*, 27(6) (November-December 1995):349.

- The level of support for nutrition education at the school (0-3 resources, 4-6 resources), and
- The type of nutrition education training the teacher has received (none, research on own, inservice, college coursework).

The classification variables "level of support for nutrition education at the school" and "type of nutrition education training the teacher has received" were constructed from information reported by teachers on their questionnaires. The level of support variable was constructed from responses to six questions asking about the availability of specific resources and policies in support of nutrition education at the school. Teachers reporting zero to three resources available to them were categorized as being in low-support schools; those reporting four to six resources were in high-support schools.¹⁴ The training variable was constructed from responses to four questions asking about participation in various types of training. Teachers could report participation in more than one type of training when responding to the question. Responses were recoded to the most formal type of training. From most to least formal, the categories used are college coursework, inservice/professional development training, research and reading on own, and none of these types.

Data have been weighted to national estimates of public elementary school teachers. All comparative statements made in this report have been tested for statistical significance through chi-square tests or t-tests adjusted for multiple comparisons using Bonferroni adjustments and are significant at the 0.05 level or better. However, not all statistically significant comparisons have been presented.

¹⁴ These categories were determined from examining the distribution of total resources available. Approximately half of teachers reported 0-3 resources and approximately half reported 4-6 resources.

Training to Teach Nutrition

To provide information on the level of training to teach nutrition, teachers were asked to report the preparation they had had for teaching nutrition. Teachers could report training from any or all of four training methods (figure 1 and table 2).

- Thirty-seven percent reported training as an undergraduate or graduate student (averaging 1.8 courses per teacher);
- Twenty-six percent reported participating in workshops, inservice, or summer institutes (averaging 7.2 hours per teacher);
- Fourteen percent reported some other professional development training (averaging 2.5 courses per teacher); and
- About 84 percent reported doing research and reading on their own.

Figure 1.—Source of training to teach nutrition reported by public elementary school teachers, K-5: 1997



* Teachers could select more than one source, so percents do not sum to 100.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K-5," FRSS 60, 1997.

Table 2.—Mean number of hours or courses taken by public elementary school teachers, K-5, to prepare them to teach nutrition, by type of training: 1997

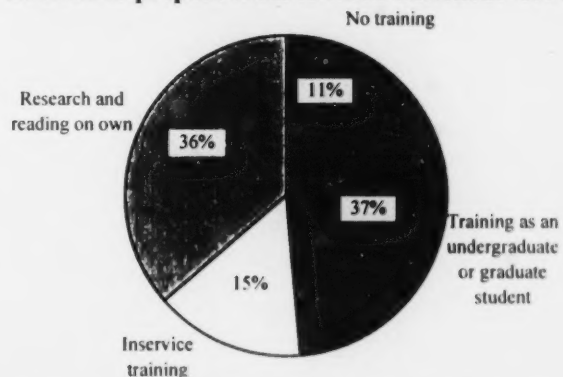
Type of training	Mean number*
Training as an undergraduate or graduate student	1.8 courses
Workshops, inservice, or summer institutes.....	7.2 hours
Some other professional development training.....	2.5 courses

*Includes only teachers with that type of training.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K-5," FRSS 60, 1997.

About half of elementary school teachers (52 percent) reported formal training to teach nutrition. To construct this summary measure, teacher responses were ranked by the most formal method of training reported. Training as an undergraduate or graduate student was ranked as most formal, and the category accounted for 37 percent of teachers. Next were workshops, inservice, and summer institutes merged with other professional development training, accounting for an additional 15 percent. Research and reading on their own was the next most formal method, reported by 36 percent of teachers who reported neither college coursework nor inservice or professional development training. Eleven percent reported they had no training to prepare them to teach nutrition (figure 2). Almost half of teachers (47 percent) had no formal training at all. This includes teachers whose most formal method was research and reading on their own and those who reported no training.

Figure 2.—Most formal method* used by public elementary school teachers to prepare them to teach nutrition: 1997



*To provide an unduplicated count, the categories were recoded to training as an undergraduate or graduate student, professional development training, research and reading on own, and no training.

NOTE: Percents may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K-5," FRSS 60, 1997.

Resources in Support of Nutrition Education

Support provided by schools can encourage classroom teachers in their nutrition education efforts. Teachers were asked whether six resources in support of nutrition education were readily available to them at their schools, and for four of the resources, what their potential for improving nutrition education was (table 3 and table 4). The resources asked about were the following:

- High-quality inservice training that focuses on teaching strategies for behavior change (available to 27 percent of teachers);
- School food-service personnel serving healthy, well-balanced meals in the cafeteria (available to 82 percent of teachers);
- Reference materials on nutrition education available at the school (available to 74 percent of teachers);
- Support from school or district for nutrition education as a valid use of instructional time (available to 70 percent of teachers);
- A written policy or guidelines on nutrition education from the school, district, or state (available to 57 percent of teachers); and
- A coordinated school nutrition policy—defined as addressing such issues as coordinating nutrition education across subjects and across grades, collaboration between the school meals program staff and the classroom, and policies on outside food vendors in the school and closed lunch periods (available to 37 percent of teachers).

With two exceptions, teachers generally report high availability of resources in support of nutrition education. Table 3 shows the teachers' responses broken out by geographic region. The categories with the lowest reported availability, i.e., high-quality inservice training in nutrition education and a coordinated school nutrition policy, both require extensive commitment on the part of the school's administration. By region, teachers from the Southeast reported greater availability of these two resources than teachers from other regions.

Table 3.—Percent of public elementary school teachers, K-5, who reported the availability at their school of various resources in support of nutrition education, by geographic region: 1997

Nutrition education resource*	Availability				
	All teachers	Northeast	Southeast	Central	West
High-quality inservice training	27	23	37	25	24
Healthy school cafeteria meals	82	79	87	78	82
Reference materials at school	74	73	82	70	71
Support for use of instructional time.....	70	61	75	75	69
Written guidelines on nutrition education.....	57	54	66	59	52
Coordinated school nutrition policy.....	37	33	48	37	33

*See questions 2 and 3 in Appendix C.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K-5," FRSS 60, 1997.

Overall, about half of teachers (50 percent) reported that fewer than four of the six resources were available to them, and about half reported between four and six (not shown in a table). This summary measure of the level of general support at the school for nutrition education is used later in this report to analyze reported classroom activities.

Despite research indicating the importance of these resources,¹⁵ teachers do not view access to these resources as the only thing needed to improve nutrition education (table 4). About 30 percent of these teachers indicated that healthy school cafeteria meals (34 percent), support for use of instructional time (29 percent), and reference materials at school (28 percent) would improve it to a great extent. About one-fifth (21 percent) indicated that high-quality inservice training would improve it to a great extent. Between 39 and 49 percent reported that each of these resources would improve nutrition education to a moderate extent.

Table 4.—Percent of public elementary school teachers, K-5, who reported the potential of various resources to improve nutrition education: 1997

Nutrition education resource	Potential to improve nutrition education			
	None	Small extent	Moderate extent	Great extent
High-quality inservice training	12	24	43	21
Healthy school cafeteria meals.....	9	18	39	34
Reference materials at school.....	4	19	49	28
Support for use of instructional time.....	7	21	44	29

NOTE: Percents may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K-5," FRSS 60, 1997.

¹⁵ Isobel Contento, "Conclusions," *Journal of Nutrition Education*, 27(6) (November-December 1995):358-359.

Nutrition Education in the Classroom

Amount of Nutrition Instruction

Eighty-eight percent of elementary school teachers reported that they taught lessons about nutrition to their students in the 1996-97 school year (table 5). More kindergarten through second-grade teachers (92 percent) taught nutrition than did third- through fifth-grade teachers (83 percent).

Table 5.—Percent of public elementary school teachers, K-5, who taught nutrition in school year 1996-97, and for those who taught nutrition, the mean number of total hours taught, by instructional level: 1997

Instructional level	Percent who taught about nutrition	Mean hours (for those who taught about nutrition)
All kindergarten through fifth-grade teachers.....	88	13
Kindergarten-second	92	14
Third-fifth.....	83	12

NOTE: Does not include the 12 percent of teachers who did not teach nutrition.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K-5," FRSS 60, 1997.

One important element of effective nutrition instruction is devotion of adequate time. In particular, 50 hours has been found to be the minimum to show impact on nutrition behavior.¹⁶ Teachers were asked to report the total hours they spent in the current year (school year 1996-97) on nutrition education, including time dedicated specifically to nutrition lessons and time spent on integrated lessons. Data in table 5 indicate that, among the teachers who did teach nutrition, the mean number of hours spent on nutrition education by elementary school teachers was 13, below the 50 hours thought to be necessary for impact on behavior.¹⁷

¹⁶ Lytle, "Nutrition Education for School-aged Children," 307.

¹⁷ The estimates that follow about classroom practices in nutrition education do not include the 12 percent of teachers who did not teach lessons about nutrition.

Placement in the Curriculum

Nutrition can be taught as a separate subject, but it can also be integrated into other subjects. Elementary school teachers reported the extent to which they integrated nutrition lessons into the subjects of health and physical education, history and social studies, mathematics, reading and language arts, and science (table 6), and also reported whether they taught nutrition as a separate subject (table 7). About one-third of teachers (35 percent) taught nutrition as a separate subject, and close to the same number integrated nutrition lessons to a great extent into health and physical education (39 percent) and science (33 percent). Fewer teachers integrated lessons to a great extent into reading and language arts (14 percent), history and social studies, and mathematics (4 and 5 percent, respectively). About 4 percent of teachers taught nutrition as a separate subject but did not integrate it into other subjects (figure 3).

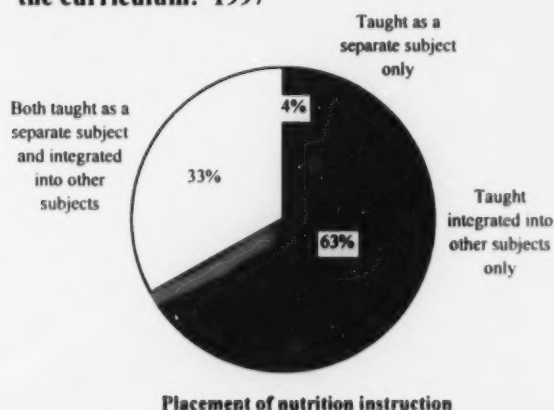
Table 6.—Percent of public elementary school teachers, K-5, who taught nutrition, by the extent to which they integrated lessons about nutrition into various subjects: 1997

Subject	Extent to which nutrition lessons are integrated			
	Not at all	Small extent	Moderate extent	Great extent
Health/physical education	10	19	32	39
History/social studies	26	46	23	4
Mathematics	23	44	28	5
Reading/language arts	9	34	43	14
Science	5	18	45	33

NOTE: Percents may not sum to 100 due to rounding. Does not include the 12 percent of teachers who did not teach nutrition.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K-5," FRSS 60, 1997.

Figure 3.—Percent of public elementary school teachers, K-5, who taught nutrition, by the placement of nutrition instruction in the curriculum: 1997



SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K-5," FRSS 60, 1997.

Table 7.—Percent of public elementary school teachers, K-5, who taught nutrition as a separate subject and who integrated lessons into other subjects to a great extent, by various characteristics: 1997

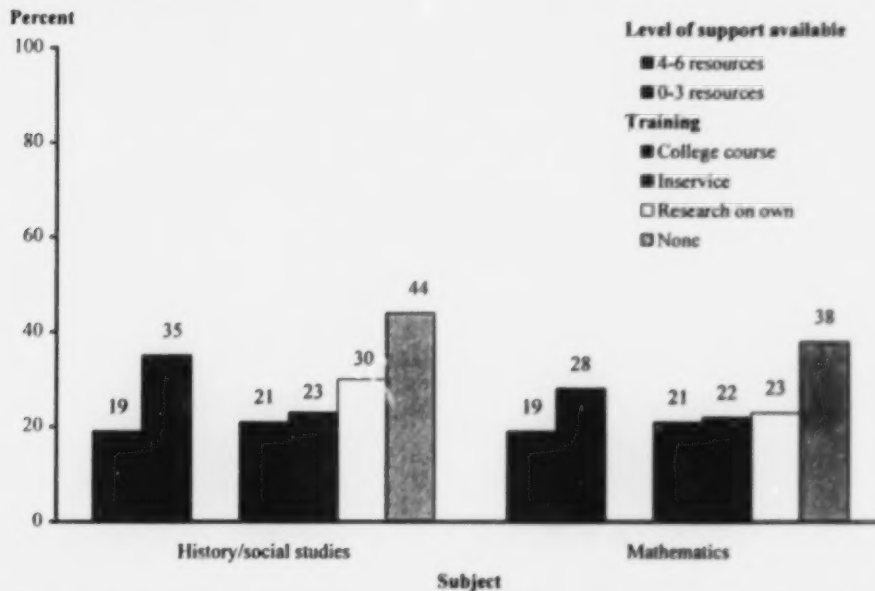
Characteristic	Nutrition taught as a separate subject	Integrated to a great extent				
		Health/physical education	History/social studies	Mathematics	Reading/language arts	Science
All kindergarten through fifth-grade teachers	35	39	4	5	14	33
Instructional level						
Kindergarten-second	35	36	7	5	19	30
Third-fifth	36	43	1	4	9	36
Enrollment size						
Less than 300	30	32	2	6	16	31
300-499	37	37	4	4	13	32
500 or more	35	43	5	5	14	34
Geographic region						
Northwest	35	36	2	4	11	26
Southeast	33	47	6	5	16	39
Central	33	34	3	3	13	31
West	38	40	5	6	15	34
Level of support available from school						
0-3 resources	30	32	4	3	12	29
4-6 resources	40	46	5	5	15	36
Most formal training to teach about nutrition						
None	27	25	1	1	9	13
Research on own	31	36	4	4	14	30
Inservice	38	42	2	3	12	36
College coursework	40	44	6	6	16	38

NOTE: Does not include the 12 percent of teachers who did not teach nutrition.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K-5," FRSS 60, 1997.

Both level of support from the school for nutrition education and level of teacher training appear to be related to whether teachers integrate lessons about nutrition into other subjects. To shed some light on these relationships, figure 4 shows the proportion of elementary teachers who did not integrate lessons about nutrition into history and social studies and mathematics. Teachers in low-support schools and those with no training were generally least likely to integrate nutrition lessons. For example, 35 percent of teachers in low-support schools versus 19 percent of those in high-support schools did not integrate lessons about nutrition into history and social studies; and 44 percent of teachers with no training versus 21 percent of those with college coursework do not integrate lessons about nutrition into history and social studies.¹⁸

Figure 4.—Percent of public elementary school teachers who taught nutrition but did not integrate it into history and social studies, and mathematics, by various characteristics: 1997



NOTE: Table displays percent of teachers who do not integrate nutrition lessons into the subject among teachers who taught nutrition.
 SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K-5," FRSS 60, 1997.

¹⁸ The apparent difference of 30 percent of teachers whose most formal training is research on their own versus 44 percent of those with no training integrating nutrition lessons into history is not statistically significant.

Teaching Strategies

Teachers reported that they employed active learning strategies and did not rely exclusively on traditional lecturing methods for nutrition education. Research has shown that these student-centered instructional strategies are more effective at changing behavior than other methods.

An active, behaviorally focused approach should be used consistently in nutrition education programs . . . An active, learner-centered behavioral change process then systematically targets the psychosocial factors that are antecedents of behavior such as personal factors and behavioral capabilities, as well as environmental factors.¹⁹

Table 8 lists the teaching strategies by the extent of their use by elementary school teachers. Active learning strategies, such as active discussion (57 percent), hands-on learning (29 percent), and collaborative work (27 percent), were used to a great extent by the most teachers. More traditional techniques, such as lecturing (8 percent), demonstration (19 percent), and media presentations (7 percent), were also used to a great extent by some teachers. Few teachers (5 percent or less) reported using computers or other advanced technology, events such as field trips and guest speakers, and special events like fairs and plays to a great extent.

Table 8.—Percent of public elementary school teachers, K-5, who taught nutrition, by extent of use of various teaching strategies for nutrition lessons: 1997

Teaching strategy	Extent of use			
	Not at all	Small extent	Moderate extent	Great extent
Active discussion	--	8	35	57
Collaborative or cooperative work	6	22	45	27
Computers or other advanced technology	60	30	8	3
Demonstrations	11	29	41	19
Field trips	61	26	9	4
Guest speakers	47	34	14	5
Hands-on learning	7	23	40	29
Lecturing	15	39	39	8
Media presentations	24	34	35	7
Role playing	30	38	25	7
Special events (e.g., fairs, plays)	53	32	12	3
Student projects	23	37	31	9
Team teaching	63	20	12	6

--Less than 0.5 percent.

NOTE: Percents may not sum to 100 due to rounding. Does not include the 12 percent of teachers who did not teach nutrition.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K-5," FRSS 60, 1997.

¹⁹ Contento, "Conclusions," 360.

Teachers of grades K-2, teachers with higher levels of support for nutrition education from their schools, and teachers with more training in nutrition education were more likely to use some of the active learning strategies in their nutrition instruction to a moderate or great extent.

- By instructional level, kindergarten through second-grade teachers were more likely to use hands-on learning (75 percent) and role playing (37 percent) to a moderate or great extent than were third- through fifth-grade teachers (63 percent and 26 percent, respectively) (table 9). However, kindergarten through second-grade teachers were less likely to use student projects (37 versus 44 percent) to a moderate or great extent.
- More teachers with high administrative support than those with low support used collaborative or cooperative work (78 versus 65 percent), computers (15 versus 6 percent), hands-on learning (76 versus 61 percent), and student projects (48 versus 31 percent) to a moderate or great extent.
- Teachers with no training in nutrition education were less likely than those with college coursework to use several of the active learning strategies (hands-on learning, role playing, student projects, and collaboration) to a moderate or great extent. Fifty-three percent of teachers with no training used collaborative work versus 76 percent of teachers with college coursework in nutrition education to a moderate or great extent.

Table 9.—Percent of public elementary school teachers, K-5, who taught nutrition, who used various teaching strategies to a moderate or great extent,* by various characteristics: 1997

Characteristic	Teaching strategy used to a moderate or great extent					
	Active discussion	Collaborative or cooperative work	Computers or other advanced technology	Hands-on learning	Role playing	Student projects
All kindergarten through fifth-grade teachers.....	92	72	11	69	32	40
Instructional level						
Kindergarten-second.....	91	73	9	75	37	37
Third-fifth.....	93	70	13	63	26	44
Level of support available from school						
0-3 resources.....	90	65	6	61	30	31
4-6 resources.....	94	78	15	76	34	48
Most formal training to teach about nutrition						
None.....	83	53	5	57	21	23
Research on own.....	93	70	9	65	26	39
Inservice.....	93	75	11	71	34	38
College coursework.....	93	76	12	75	39	45

*These response categories were combined for this analysis.

NOTE: Does not include the 12 percent of teachers who did not teach nutrition.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K-5," FRSS 60, 1997.

Looking more closely at teaching strategies least likely to be used, teachers with low levels of support and teachers with no training (compared to those with college training) were less likely to use several of these strategies, including the following: computers or other advanced technology, field trips, guest speakers, special events such as fairs and plays, and team teaching (table 10). Briefly,

- Thirty percent of low-support teachers used computers to any extent, versus 50 percent of high-support teachers;
- Thirty-three percent of low-support teachers used field trips to any extent, versus 44 percent of high-support teachers;
- Forty-one percent of low-support teachers and 42 percent of teachers with no training used guest speakers to any extent, versus 62 percent of high-support teachers and 61 percent of teachers with college training;
- Forty percent of low-support teachers and 33 percent of teachers with no training used special events to any extent, versus 53 percent of high-support teachers and 55 percent of teachers with college training; and
- Twenty-nine percent of low-support teachers used team teaching to any extent, versus 45 percent of high-support teachers.

For these strategies, teachers whose most formal training was research and reading on their own tended to resemble those with no training, while teachers with inservice training tended to resemble those with college training.

Table 10.—Percent of public elementary school teachers, K-5, who taught nutrition, who used various teaching strategies to any extent*, by various characteristics: 1997

Characteristic	Teaching strategy				
	Computer or other advanced technology	Field trips	Guest speakers	Special events (e.g., fairs, plays)	Team teaching
All kindergarten through fifth-grade teachers.....	40	39	53	47	37
Instructional level					
Kindergarten-second	36	44	50	49	39
Third-fifth	46	32	56	44	35
Level of support available from school					
0-3 resources	30	33	41	40	29
4-6 resources	50	44	62	53	45
Most formal training to teach about nutrition					
None	34	32	42	33	34
Research on own	36	34	44	38	31
Inservice	43	38	55	53	45
College coursework	45	44	61	55	40

*The response categories small extent, moderate extent, and great extent were combined for this analysis.

NOTE: Does not include the 12 percent of teachers who did not teach nutrition.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K-5," FRSS 60, 1997.

Working with the School Meals Program Staff

As part of its *School Meals Initiative for Healthy Children*, the USDA is encouraging school meals programs to take an active role in the nutrition education of students. The objective of participation in nutrition education is to promote student selection and consumption of the healthier school meals that meals programs are now required to serve in the cafeteria. Participation by food service staff in nutrition education in the classroom is not the easiest of tasks to accomplish because of logistical and other barriers. To gauge the extent and importance of these barriers, teachers who taught nutrition were asked to rate the extent to which eight factors were barriers to cooperation with their school meals program staff in providing nutrition education to their students. Results are reported in table 11. About 49 percent of teachers reported they had no barriers to cooperation. The barriers asked about were the following:

- No onsite kitchen at the school,
- The way the school meals program is operated (e.g., outside vendor, satellite kitchen),
- Unsure what activities are possible,
- Insufficient instructional time to fit in activities,
- Insufficient time on the part of the meals program staff,
- Classroom and meals program staff schedules hard to coordinate,
- Lack of administrative support or approval, and
- Lack of interest by the meals program staff.

Table 11.—Percent of public elementary school teachers, K-5, who taught nutrition, who reported various barriers to cooperation with their school meals program staff in providing nutrition education: 1997

Barrier	Extent of barrier to cooperation (if any barrier)			
	Not at all	Small extent	Moderate extent	Great extent
No onsite kitchen.....	83	5	3	9
Way meals program is operated (e.g., outside vendor, satellite kitchen)	73	8	8	11
Unsure what activities possible	58	13	13	17
Insufficient instructional time	55	11	13	21
Insufficient time on the part of the meals program staff	57	9	12	22
Classroom and meals program schedules hard to coordinate	58	11	12	19
Lack of administrative approval or support	77	12	5	6
Lack of interest by the meals program staff	68	12	8	11

NOTE: Percents may not sum to 100 due to rounding. Does not include the 12 percent of teachers who did not teach nutrition.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K-5," FRSS 60, 1997.

While about half (49 percent) of elementary school teachers who teach nutrition reported no barriers to cooperation with their school meals program staff in providing nutrition education (table 12), those who did report barriers tended to focus on the following: lack of instructional time and time on the part of the meals program staff, uncertainty about possible activities, and difficulty of schedule coordination between teachers and meals program staff. For example:

- Twenty-one percent reported that insufficient instructional time was a barrier to a great extent;
- Twenty-two percent reported that insufficient time on the part of the meals program staff was a barrier to a great extent;
- Seventeen percent reported that being unsure what activities are possible was a barrier to a great extent; and
- Nineteen percent reported that classroom and meals program staff schedules being hard to coordinate was a barrier to a great extent.

Table 12.—Percent of public elementary school teachers, K-5, who taught nutrition who reported no barriers to cooperation with their school meals program in providing nutrition education, and percent who reported barriers to a great extent, by various characteristics: 1997

Characteristic	No barriers	Barrier to a great extent							
		No onsite kitchen	Way meals program is operated	Unsure what activities possible	Insufficient instructional time	Insufficient time on part of meals program	Classroom and meals program schedules hard to coordinate	Lack of administrative approval or support	Lack of interest by meals program staff
All kindergarten through fifth-grade teachers.....	49	9	11	17	21	22	19	6	11
Instructional level									
Kindergarten-second	49	9	11	16	18	20	18	6	11
Third-fifth.....	49	9	10	18	25	23	19	6	11
Geographic region									
Northeast	44	11	13	15	25	26	24	6	12
Southeast	63	3	3	11	15	17	15	4	6
Central	46	10	14	18	23	21	21	5	12
West.....	43	11	13	20	23	23	17	8	14

NOTE: Does not include the 12 percent of teachers who did not teach nutrition.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K-5," FRSS 60, 1997.

Cited less frequently as barriers to a great extent were the lack of an onsite kitchen (9 percent), the way the meals program is operated (11 percent), and lack of interest on the part of the meals program staff (11 percent). (The way the meals program is operated includes arrangements such as outside vendors and satellite kitchens.) Six percent reported that lack of administrative approval or support was a great barrier to cooperation with the meals program staff.

Table 12 shows the reported barriers broken out by instructional level and geographic region. There are some differences in barriers cited between teachers in different geographic regions. Teachers in the Southeast were more likely to report having no barriers to cooperation (63 percent, versus 44 percent for the Northeast, 46 percent for the Central, and 43 percent for the West). Southeast teachers were also less likely to report the way the meals program is operated as a barrier (3 percent, versus 13 percent, 14 percent, and 13 percent, respectively).

Working with Parents

Family involvement is an important element in effective nutrition education for elementary school students.²⁰ All surveyed teachers were asked the extent to which they or their schools used any of following eight strategies to involve parents in the nutrition education of their children:

- Including parents in homework assignments;
- Sending home educational materials to help parents learn about nutrition or teach their children about nutrition;
- Inviting parents to attend nutrition classes;
- Inviting parents to attend special events, such as School Lunch Week or tasting parties;
- Inviting parents in nutrition-related careers to speak to the class;
- Asking parents to give in-class demonstrations;
- Asking parents to send healthful snacks to school; and
- Offering nutrition workshops or screening services for parents.

With the exception of asking parents to send healthful snacks (with 37 percent "great extent" and 25 percent "moderate extent"), a majority of teachers reported that they or their schools used these strategies to a small extent or not at all (table 13).

²⁰ Lytle, "Nutrition Education for School-Aged Children," 307.

Table 13.—Percent of public elementary school teachers, K-5, who reported they or their schools used various strategies to involve parents in the nutrition education of their children: 1997

Strategy	Extent of use			
	Not at all	Small extent	Moderate extent	Great extent
Including parents in homework assignments	25	36	27	13
Sending home educational materials.....	24	39	27	10
Inviting parents to attend nutrition classes.....	79	13	6	2
Inviting parents to attend special events	42	22	21	15
Inviting parents in nutrition careers to speak to class.....	57	26	13	4
Asking parents to give in-class demonstrations.....	63	25	9	3
Asking parents to send healthful snacks to school	20	17	25	37
Offering nutrition workshops or screening services for parents.....	83	12	4	1

NOTE: Percents may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K-5," FRSS 60, 1997.

Examining the figures for teachers who reported they or their schools never used the strategies versus those who did at least to a small extent provides more information about family involvement efforts in nutrition education (table 14).

- By geographic region, teachers from the Southeast were most likely to invite parents to special events (84 percent) compared to 45 to 52 percent in the other regions.
- By level of support for nutrition education from the school, teachers with high levels of support were most likely to report that they or their schools used the following parent involvement strategies than were teachers with low levels of support; including parents in homework assignments (85 versus 66 percent), sending home educational materials (85 versus 66 percent), inviting parents to special events (70 versus 46 percent), inviting parents in nutrition careers to speak to their class (54 versus 31 percent), and asking parents to give in-class demonstrations (47 versus 28 percent).

- By level of most formal training, teachers with college coursework in nutrition education were more likely to report that they or their schools used the following parent involvement strategies than teachers with no training: including parents in homework assignments (82 versus 48 percent), sending home educational materials (78 versus 60 percent), inviting parents to special events (65 versus 41 percent), inviting parents in nutrition careers to speak to their class (52 versus 24 percent), and asking parents to give in-class demonstrations (46 versus 25 percent).

So, while family involvement strategies for nutrition education were less often used among all teachers than some might argue is optimal,²¹ teachers with higher levels of support from their schools, and teachers with college training in nutrition education were making efforts to involve families more often than teachers with lower levels of support and those with no training, respectively.

Table 14.—Percent of public elementary school teachers, K-5, who reported they or their schools used various strategies to any extent* to involve parents in the nutrition education of their children, by various characteristics: 1997

Characteristic	Strategy				
	Including parents in homework assignments	Sending home educational materials	Inviting parents to attend special events	Inviting parents in nutrition careers to speak to class	Asking parents to give in-class demonstrations
All kindergarten through fifth-grade teachers	75	75	58	42	37
Geographic region					
Northeast.....	74	78	45	38	36
Southeast.....	81	79	84	52	45
Central.....	72	76	52	42	35
West.....	75	71	51	39	33
Level of support available from school					
0-3 resources.....	66	66	46	31	28
4-6 resources.....	85	85	70	54	47
Most formal training to teach about nutrition					
None.....	48	60	41	24	25
Research on own.....	75	75	55	37	30
Inservice.....	81	81	61	45	41
College coursework	82	78	65	52	46

*The response categories small extent, moderate extent, and great extent were combined for this analysis.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K-5," FRSS 60, 1997.

²¹ Lytle, "Nutrition Education for School-aged Children," 307.

Instructional Material for Nutrition Education

The USDA is interested in promoting the development and adoption of high-quality instructional materials for nutrition education. To help determine the current need for materials, teachers who taught nutrition were asked about the quality and quantity of materials they use now, the sources of materials, the types of additional materials that would be most helpful to them in their nutrition education efforts, and their preferred methods for receiving materials. For the purposes of this survey, high quality materials were defined as being up to date, age appropriate, and appealing to students. In addition, teachers were asked whether they had enough materials for all of their students.

When teachers who taught nutrition were asked whether the instructional materials they used were high in quality, about one in four said they were up to date to a great extent (24 percent), 41 percent said they were age appropriate to a great extent, and 23 percent said they were appealing to students to a great extent (table 15). About one in five reported having enough materials for all their students to a great extent (21 percent), and about one in five (19 percent) reported that they did not have enough materials for all students.

Table 15.—Percent of public elementary school teachers, K-5, who taught nutrition, by the quality of instructional materials currently in use for nutrition education: 1997

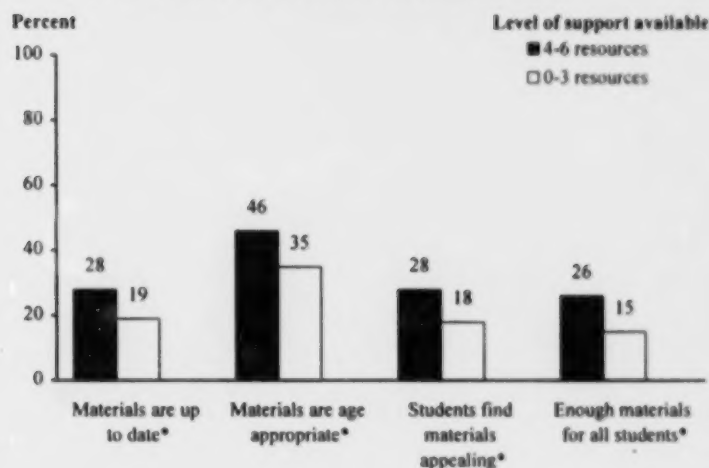
Quality measure	Extent statement is true			
	Not at all	Small extent	Moderate extent	Great extent
Materials are up to date.....	7	20	49	24
Materials are age appropriate.....	3	13	43	41
Students find materials appealing.....	4	21	52	23
Enough materials for all students.....	19	27	32	21

NOTE: Percents may not sum to 100 due to rounding. Does not include the 12 percent of teachers who did not teach nutrition.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K-5," FRSS 60, 1997.

Teachers with high levels of support for nutrition education from their school were more likely to report high-quality materials than were teachers at low support schools (figure 5). For example, 28 percent of teachers in high-support schools reported their materials are up to date, versus 19 percent of those in low-support schools. Teachers in high-support schools were also more likely to report having enough materials for all their students, that students find materials appealing, and that materials are age appropriate to a great extent. Teachers with inservice training in nutrition education were more likely than teachers with no training to report their materials were up to date and age appropriate to a great extent (figure 6). For example, 44 percent of teachers with inservice training reported their materials were age appropriate to a great extent, versus 21 percent of teachers with no training.

Figure 5.—Percent of public elementary school teachers, K-5, who taught nutrition, who reported their nutrition education instructional materials were high quality, by level of support at the school for nutrition education: 1997

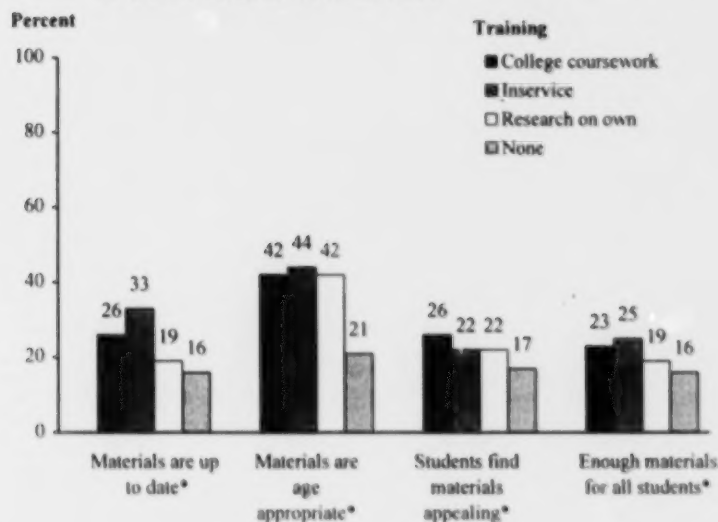


* Statement is true to a great extent.

NOTE: Does not include the 12 percent of teachers who did not teach about nutrition.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K-5," FRSS 60, 1997.

Figure 6.—Percent of public elementary school teachers, K-5, who taught nutrition, who reported their nutrition education instructional materials were high quality, by level of training to teach about nutrition: 1997



* Statement is true to a great extent.

NOTE: Does not include the 12 percent of teachers who did not teach nutrition.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K-5," FRSS 60, 1997.

A high proportion of elementary school teachers who taught nutrition used materials for nutrition education that they found or developed on their own (table 16). Thirty-three percent did this to a moderate extent and 35 percent did it to a great extent. Teachers in the lower elementary grades three through five (kindergarten through second) did this more often to a great extent (40 percent) than did teachers in grades three through five (29 percent). Also, teachers with lower levels of support (40 percent) used materials they found on their own to a great extent more often than those with higher levels (31 percent).

Table 16.—Percent of public elementary school teachers, K-5, who taught nutrition, by the extent to which they used nutrition education materials they found or developed on their own, by various characteristics: 1997

Characteristic	Extent to which used materials found or developed by teacher			
	Not at all	Small extent	Moderate extent	Great extent
All kindergarten through fifth-grade teachers.....	8	25	33	35
Instructional level				
Kindergarten-second	5	21	34	40
Third-fifth.....	10	29	31	29
Level of support available from school				
0-3 resources	8	21	30	40
4-6 resources	7	27	35	31
Most formal training to teach about nutrition				
None	14	34	25	27
Research on own	9	20	33	38
Inservice	11	31	35	23
College coursework.....	4	24	33	40

NOTE: Percents may not sum to 100 due to rounding. Does not include the 12 percent of teachers who did not teach nutrition.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K-5," FRSS 60, 1997.

All surveyed teachers were asked the extent to which eight types of instructional materials would be useful to them in their nutrition education efforts (in addition to materials they already used) (table 17). They rated materials as useful to a great extent to the following degrees:

1. Audio and visual aids such as films, videotapes, or posters (61 percent);
2. Manipulatives and laboratory materials (58 percent);
3. Teacher materials such as curriculum guides or trade books (47 percent);
4. Computer software (43 percent);
5. Supplementary student materials (e.g., worksheets) (31 percent);
6. Publications such as newsletters, magazines, or pamphlets (30 percent);
7. Textbooks (22 percent); and
8. Student assessment materials (22 percent).

Table 17.—Percent of public elementary school teachers, K-5, by the extent to which various instructional materials would be useful to them in nutrition education, by instructional level: 1997

Instructional level/type of material	Extent to which materials would be useful			
	Not at all	Small extent	Moderate extent	Great extent
All kindergarten through fifth-grade teachers				
Teacher materials (e.g., curriculum guides or trade books).....	7	13	33	47
Textbooks	28	26	24	22
Supplementary student materials (e.g., worksheets).....	10	26	33	31
Publications (e.g., newsletters, magazines, pamphlets).....	9	25	35	30
Student assessment materials.....	18	29	31	22
Manipulatives and laboratory materials.....	7	10	25	58
Computer software.....	12	15	29	43
Audio and visual aids (e.g., films, videotapes, posters)	4	7	28	61
Kindergarten-second				
Teacher materials (e.g., curriculum guides or trade books).....	6	13	32	49
Textbooks	36	26	20	18
Supplementary student materials (e.g., worksheets).....	11	29	33	27
Publications (e.g., newsletters, magazines, pamphlets).....	10	28	38	25
Student assessment materials.....	23	32	27	18
Manipulatives and laboratory materials.....	7	9	25	59
Computer software.....	13	16	30	40
Audio and visual aids (e.g., films, videotapes, posters)	3	7	29	61
Third-fifth				
Teacher materials (e.g., curriculum guides or trade books).....	7	12	35	45
Textbooks	20	26	29	25
Supplementary student materials (e.g., worksheets).....	9	22	32	37
Publications (e.g., newsletters, magazines, pamphlets).....	8	22	33	37
Student assessment materials.....	13	25	35	27
Manipulatives and laboratory materials.....	8	10	26	56
Computer software.....	11	14	28	47
Audio and visual aids (e.g., films, videotapes, posters)	5	8	27	60

NOTE: Percents may not sum to 100 due to rounding.

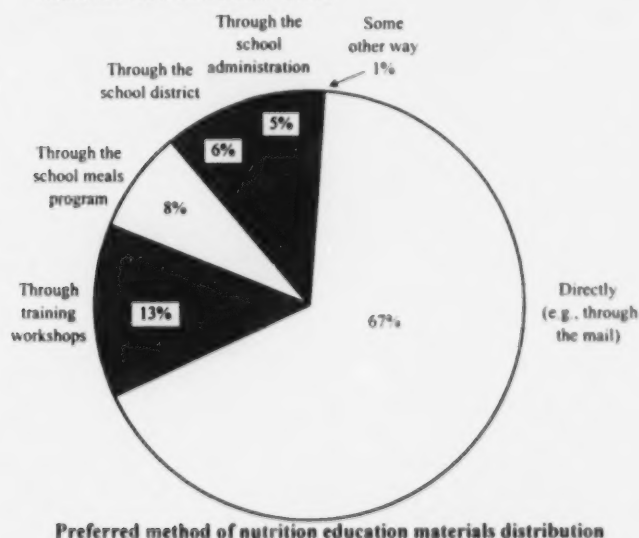
SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K-5," FRSS 60, 1997.

More teachers at the kindergarten through second-grade level reported that textbooks for nutrition education would not be useful to them at all than did teachers of grades three to five (36 versus 20 percent), and teachers of grades three to five were more likely than kindergarten through second-grade teachers to report that supplemental materials (37 versus 27 percent), publications such as newsletters (37 versus 25 percent), and assessments (27 versus 18 percent) would be useful to them to a great extent.

All surveyed teachers were also asked about their preferred method for having nutrition education materials distributed to them. The majority (67 percent) said they prefer receiving materials for nutrition education directly, such as through the mail (figure 7). A few (13 percent) would rather receive materials through training workshops; and fewer still preferred using specific intermediaries, such as the school meals program (8 percent), the school district (6 percent), or their school's administration (5 percent). Altogether, about 19 percent preferred use of any intermediaries.

To get an idea of the familiarity of elementary school teachers with Team Nutrition, the USDA program to improve nutrition education in the classroom, a separate question was asked of all surveyed teachers. About one in ten (9 percent) reported familiarity with the program (not shown in a table).

Figure 7.—Percent of public elementary school teachers, K-5, by preferred method for having nutrition education materials distributed to them: 1997

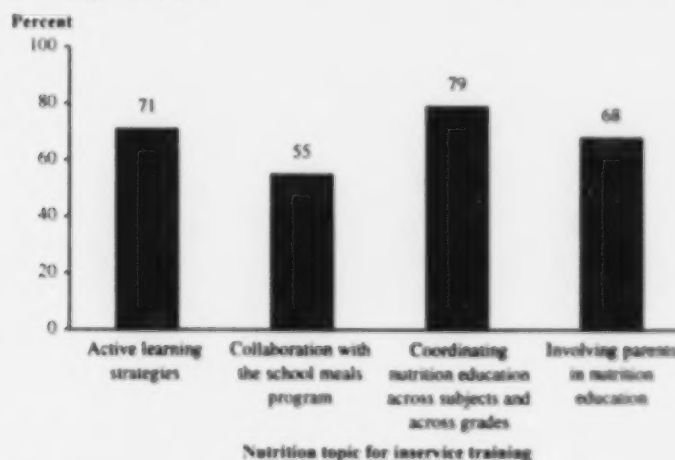


SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K-5," FRSS 60, 1997.

Topics for Inservice Training in Nutrition Education

All surveyed teachers were asked whether they would like to receive inservice training on four nutrition topics. In each of the four areas, a majority of elementary teachers said they would like to receive inservice training (figure 8). Specifically, 79 percent would like such training for coordinating nutrition education across subjects and across grades; 71 percent, for active learning strategies; 68 percent, for involving parents in nutrition education; and 55 percent, for collaborating with the school meals program.

Figure 8.—Percent of public elementary school teachers, K-5, who would like to receive inservice training on various nutrition topics: 1997



SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K-5," FRSS 60, 1997.

Comparison Between School and Teacher Results

There are several topics where the results from the current survey of teachers are similar to the results obtained from schools in the previous 1995 FRSS nutrition education survey,²² in particular when comparing results from the Southeast region to other geographic regions.

The FRSS school survey reported higher nutrition education activity among meals programs in the Southeast than in other geographic regions. Meals programs in Southeast elementary schools were more likely to have bulletin boards with nutrition information and to sponsor School Lunch Week, as

²² U.S. Department of Education, National Center for Education Statistics. *Nutrition Education in U.S. Public Elementary and Secondary Schools*, NCES 96-852, by Carin Celebuski and Elizabeth Farris, Judi Carpenter, project officer, 1996.

well as to provide nutrition education in the classroom and to solicit student and parent input than meals programs in other geographic regions. The teacher survey found that teachers in the Southeast were more likely to report a greater availability of high-quality inservice training and a coordinated school nutrition policy. They were also least likely to report barriers to cooperation with the meals program staff compared to teachers from other regions.

Summary

The results of this survey show that nutrition education is going on in elementary school classrooms, and that many of the instructional materials and techniques used are those that research indicates may be effective. However, the classroom time currently devoted to this topic may not be sufficient to change eating behaviors in students. Research cited earlier in this report suggests that nutrition instruction might be improved through inservice training focusing on the following:

- Use of active learning strategies,
- Ways to integrate nutrition lessons into other subjects, and
- Ways to involve families in nutrition education.

Teachers reported that they were interested in receiving inservice training about these topics. Those who received high support or had some types of training were more likely to do some of these things than teachers with low support or with no training, respectively. In addition, teachers with inservice training were more likely to use instructional materials that were up to date and age appropriate than teachers with no training.

Appendix A:

Survey Methodology and Data Reliability

Survey Methodology and Data Reliability

Sample Selection

The sampling frame of schools for the FRSS nutrition education teacher survey was constructed from the 1993-94 NCES Common Core of Data (CCD) public school universe file and included over 61,000 regular elementary schools. For the purposes of the survey, elementary schools were defined to be those with a beginning grade of sixth or lower and no grade higher than eighth. Excluded from the frame were special education, vocational, and alternative/other schools, schools in the U.S. territories, and schools with a highest grade lower than grade one.

Samples were selected in two stages, first elementary schools, and then teachers within the sampled schools. The CCD frame was stratified by locale (city, urban fringe, town, rural), crossed by enrollment size (less than 300, 300 to 499, and 500 or more). Within each primary stratum, schools were sorted by geographic region (Northeast, Southeast, Central, West) and a measure of poverty status (based on the percentage of students eligible for free or reduced-price lunch) prior to sample selection to induce additional implicit stratification. A sample of 750 schools was then selected from the sorted frame with probabilities proportionate to size (PPS), where the measure of size was the estimated number of full-time-equivalent (FTE) teachers in the school. It should be noted that FTE teacher counts were missing for about 2 percent of the schools in the CCD file. For these, the required measure of size was imputed by applying the average enrollment-to-FTE teacher ratio for schools in the same locale and enrollment size class category to the enrollment of the school with the missing FTE teacher count.

To facilitate the selection of teachers, each sampled school was requested to provide a comprehensive list of their teachers of grades kindergarten through five who taught self-contained classes. Lists were obtained from 96 percent of the selected elementary schools, yielding 705 participating schools. An average of about two elementary school teachers (fewer for schools with a smaller number of eligible teachers and more for schools with a larger number of eligible teachers) was then selected from each participating school, for a total initial sample size of 1,409.

Respondents and Response Rates

In February 1997, questionnaires (see appendix C) were mailed to 1,409 public elementary school teachers. Of the teachers sampled, 62 were found to be out of scope (no longer at the school, or not assigned to a self-contained class), leaving 1,347 eligible teachers in the sample. Telephone followup was initiated in March, and data collection was completed on July 3, with 1,180 respondents. The teacher response rate was 88 percent. This figure combines with the response rate from the list collection for a final response rate of 84 percent. Item nonresponse rates ranged from 0.0 to 1.0 percent.

Sampling and Nonsampling Errors

The responses were weighted to produce national estimates. The weights were designed to adjust for the variable probabilities of selection and differential nonresponse. The findings in this report are estimates based on the sample selected and, consequently, are subject to sampling variability.

The survey estimates are also subject to nonsampling errors that can arise because of nonobservation (nonresponse or noncoverage) errors, errors of reporting, and errors made in the collection of the data. These errors can sometimes bias the data. Nonsampling errors may include such problems as the differences in the respondents' interpretations of the meaning of the questions; memory effects; misrecording of responses; incorrect editing, coding, and data entry; differences related to the particular time the survey was conducted; or errors in data preparation. While general sampling theory can be used in part to determine how to estimate the sampling variability of a statistic, nonsampling errors are not easy to measure and, for measurement purposes, usually require that an experiment be conducted as part of the data collection procedures or that data external to the study be used.

To minimize the potential for nonsampling errors, the questionnaire was pretested with knowledgeable respondents like those who completed the survey. During the design of the survey and the survey pretest, an effort was made to check for consistency of interpretation of questions and to eliminate ambiguous terms. The questionnaire and instructions were extensively reviewed by the Food and Nutrition Service and the National Center for Education Statistics. Manual and machine editing of the questionnaire responses were conducted to check the data for accuracy and consistency. Cases with missing or inconsistent items were recontacted by telephone. Imputations for item nonresponse were not implemented, as item nonresponse rates were very low. Data were keyed with 100 percent verification.

Variances

The standard error is a measure of the variability of an estimate due to sampling. It indicates the variability of a sample estimate that would be obtained from all possible samples of a given design and size. Standard errors are used as a measure of the precision expected from a particular sample. If all possible samples were surveyed under similar conditions, intervals of 1.96 standard errors below to 1.96 standard errors above a particular statistic would include the true population parameter being estimated in about 95 percent of the samples. This is what is referred to as a 95 percent confidence interval. For example, the estimated percentage of teachers who taught about nutrition in school year 1996-97 is 88 percent and the estimated standard error is 1.1 percent. The 95 percent confidence interval for this statistic extends from $88 - (1.96 * 1.1)$ to $88 + (1.96 * 1.1)$, or from 85.8 to 90.2.

Estimates of standard errors were computed using a technique known as jackknife replication. As with any replication method, jackknife replication involves constructing a number of subsamples (replicates) from the full sample and computing the statistic of interest for each replicate. The mean square error of the replicate estimates around the full sample estimate provides an estimate of the variance of the statistic. To construct the replicates, 50 stratified subsamples of the full sample were created and then dropped, one at a time, to define 50 jackknife replicates. A proprietary computer program (WESVAR), available at Westat, was used to calculate the estimates of standard errors.

Background Information

The survey was conducted under contract with Westat, using the NCES Fast Response Survey System (FRSS). Westat's project director was Elizabeth Farris, and the survey manager was Carin Celebuski. Shelley Burns and Judi Carpenter were the NCES project officers. The data were requested by Leslie Christovich and Marie Mitchell from the Food and Nutrition Service of the USDA. Marie Mitchell coordinated the project for the USDA.

The survey instrument was developed with input from several persons in the field of nutrition education, including individuals from the USDA's Nutrition and Technical Services Division and Team Nutrition.

The report was reviewed by the following individuals:

Outside NCES

- Marie Mitchell, CDC
- Leslie Lytle, University of Minnesota

Inside NCES

- Marilyn McMillen
- Kathryn Chandler
- Larry Bobbitt
- Jonaki Bose

For more information about the Fast Response Survey System or the nutrition education teacher survey, contact Shelley Burns, Elementary/Secondary Statistics Division, Office of Educational Research and Improvement, National Center for Education Statistics, 555 New Jersey Avenue, NW, Washington, DC 20208-5651, telephone (202) 219-1463.

Terms Defined on the Survey Questionnaire

Collaborative or cooperative work - students work together in small groups to solve problems or do projects.

Coordinated school nutrition policy - may address such issues as coordinating nutrition education across subjects and across grades, collaboration between the school meals program and the classroom, and policies on outside food vendors and closed lunch periods.

Coordinating nutrition education across subjects and across grades - refers to the integration of nutrition lessons into subjects such as math and science, and the integration across grades so the lessons at each grade level build on the previous year's lessons.

Hands-on learning - students engage in direct learning experiences by applying their learning to real-life situations or everyday issues and events.

Nutrition education materials - lesson plans, curriculum guides, posters, pamphlets, multimedia, etc., designed to improve health, achieve positive change in dietary habits, and emphasize the relationship between diet and health.

Nutrition education - refers to curricula, courses, lesson plans and units, and activities designed to provide instruction with regard to the nutritional value of foods and the relationship between food and human health.

Classification Variables

Instructional level of the teacher

Kindergarten through second-grade teachers.

Third through fifth-grade teachers.

School enrollment size

Less than 300 students in the school.

Between 300-499 students in the school.

500 or more students in the school.

Geographic region of the school

Northeast - Connecticut, Delaware, District of Columbia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.

Southeast - Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia.

Central - Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.

West - Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oklahoma, Oregon, Texas, Utah, Washington, and Wyoming.

Level of support for nutrition education at the school - constructed from information reported by teachers on their questionnaires (questions 2 and 3). Affirmative responses to six questions asking about the availability of specific resources and policies in support of nutrition education at the school were summed. The six resources were ongoing inservice training that focuses on teaching strategies for behavioral change; school food service personnel serving healthy, well-balanced meals in the cafeteria; reference materials on nutrition education available at your school; support from your school or district for nutrition education as a valid use of instructional time; a written policy or guidelines on nutrition education from your school, district, or state; and a coordinated school nutrition policy.

Low - teachers reporting 0-3 resources available to them.

High - teachers reporting 4-6 resources available to them.

Type of nutrition education training the teacher has received - constructed from information reported by teachers on their questionnaires (question 17). Teachers were recoded to their most formal type of training, although they may have participated in other types of training as well.

None - teachers reported not participating in any training for teaching students about nutrition.

Research on own - teachers reported that they did research on their own, but did not participate in any formal training.

Inservice - teachers reported that they participated in inservice or other professional development training, but did not participate in training as an undergraduate or graduate student.

College coursework - teachers reported that they participated in training as an undergraduate or graduate student.

Appendix B

Tables of Standard Errors

Table 1a.—Standard errors of mean years of teaching and grades taught by public elementary school teachers, K-5, who taught self-contained classes: 1997

Characteristic	Standard error of mean number or percent
Mean number of years teaching at the elementary school level.....	0.2
Grade or grades taught	
Kindergarten	0.8
Grade 1	1.0
Grade 2	1.1
Grade 3	1.0
Grade 4	1.0
Grade 5	0.9

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K-5," FRSS 60, 1997.

Table 2a.—Standard errors of mean number of hours or courses taken by public elementary school teachers, K-5, to prepare them to teach nutrition, by type of training: 1997

Type of training	Standard error of mean number
Training as an undergraduate or graduate student.....	0.1
Workshop, inservice, or summer institutes	0.4
Some other professional development training.....	0.4

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K-5," FRSS 60, 1997.

Table 3a.—Standard errors of percent of public elementary school teachers, K-5, who reported the availability at their school of various resources in support of nutrition education, by geographic region: 1997

Nutrition education resource	Standard error of availability				
	All teachers	Northeast	Southeast	Central	West
High-quality inservice training	1.2	2.6	3.4	2.2	2.1
Healthy school cafeteria meals.....	1.3	3.1	2.1	2.9	2.2
Reference materials at school.....	1.4	2.3	2.3	3.5	2.7
Support for use of instructional time.	1.5	3.2	2.8	2.9	2.4
Written guidelines on nutrition education	1.7	4.1	2.9	2.8	2.4
Coordinated school nutrition policy ..	1.4	3.9	2.9	2.6	2.5

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K-5," FRSS 60, 1997.

Table 4a.—Standard errors of percent of public elementary school teachers, K-5, who reported the potential of various resources to improve nutrition education: 1997

Nutrition education resource	Standard error of potential to improve nutrition education			
	None	Small	Moderate	Great
High-quality inservice training.....	1.1	1.2	1.6	1.2
Healthy school cafeteria meals.....	0.9	1.3	1.5	1.4
Reference materials at school.....	0.6	1.1	1.5	1.3
Support for use of instructional time.....	0.6	1.1	1.6	1.1

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K-5," FRSS 60, 1997.

Table 5a.—Standard errors of percent of public elementary school teachers, K-5, who taught nutrition in school year 1996-97, and for those who taught nutrition, the standard errors of the mean number of total hours taught, by instructional level: 1997

Instructional level	Standard error of percent who taught about nutrition	Standard error of mean hours (for those who taught about nutrition)
All kindergarten through fifth-grade teachers	1.1	0.5
Kindergarten-second.....	1.2	0.7
Third-fifth.....	1.4	0.7

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K-5," FRSS 60, 1997.

Table 6a.—Standard errors of percent of public elementary school teachers, K-5, who taught nutrition, by the extent to which they integrated lessons about nutrition into various subjects: 1997

Subject	Standard error of extent to which nutrition lessons are integrated			
	Not at all	Small extent	Moderate extent	Great extent
Health/physical education	1.0	1.0	1.2	1.2
History/social studies.....	1.3	1.5	1.6	0.6
Mathematics	1.2	1.5	1.6	0.7
Reading/language arts	0.9	1.7	1.6	1.3
Science.....	0.7	1.3	1.7	1.5

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K-5," FRSS 60, 1997.

Table 7a.—Standard errors of percent of public elementary school teachers, K-5, who taught nutrition as a separate subject and who integrated lessons into other subjects to a great extent, by various characteristics: 1997

Characteristic	Nutrition taught as a separate subject (s.e.)	Standard error of percent integrated to a great extent				
		Health/ physical education	History/ social studies	Mathematics	Reading/ language arts	Science
All kindergarten through fifth-grade teachers	1.3	1.2	0.6	0.7	1.3	1.5
Instructional level						
Kindergarten-second	1.7	2.0	1.1	0.9	1.8	2.0
Third-fifth	2.0	1.9	0.6	0.9	1.5	2.4
Enrollment size						
Less than 300	3.7	4.8	1.2	2.3	3.6	4.9
300-499	2.7	2.6	1.1	1.0	2.1	2.6
500 or more	1.8	1.9	0.9	1.1	1.7	2.1
Geographic region						
Northwest	3.7	4.0	0.9	1.3	2.8	3.7
Southeast	2.7	3.6	1.6	1.4	3.0	3.5
Central	3.2	3.7	1.2	1.0	2.7	2.7
West	2.8	2.2	1.0	1.4	2.0	2.4
Level of support available from school						
0-3 resources	2.0	2.0	0.8	0.8	1.6	2.0
4-6 resources	2.1	2.1	0.9	0.9	1.7	2.2
Most formal training to teach about nutrition						
None	4.7	4.9	1.4	1.2	3.2	3.5
Research on own	2.3	2.9	1.1	1.1	1.9	2.0
Inservice	3.7	4.0	1.1	1.5	3.0	3.7
College coursework	2.2	2.4	1.1	1.3	1.7	2.4

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K-5," FRSS 60, 1997.

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Table 8a.—Standard errors of percent of public elementary school teachers, K-5, who taught nutrition, by extent of use of various teaching strategies for nutrition lessons: 1997

Teaching strategy	Standard error of extent of use			
	Not at all	Small extent	Moderate extent	Great extent
Active discussion.....	0.1	0.9	1.3	1.3
Collaborative or cooperative work	0.6	1.7	1.6	1.5
Computers or other advanced technology	1.7	1.5	1.0	0.4
Demonstrations.....	0.9	1.7	1.3	1.3
Field trips.....	1.3	1.2	0.9	0.7
Guest speakers.....	1.9	1.5	1.1	0.6
Hands-on learning	0.9	1.6	1.5	1.5
Lecturing.....	1.1	1.4	1.5	0.8
Media presentations.....	1.5	1.5	1.3	0.8
Role playing.....	1.4	1.4	1.1	0.9
Special events (e.g., fairs, plays).....	1.6	1.3	0.9	0.5
Student projects	1.1	1.5	1.3	0.9
Team teaching	1.7	1.5	1.1	0.9

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K-5," FRSS 60, 1997.

Table 9a.—Standard errors of percent of public elementary school teachers, K-5, who taught nutrition, who used various teaching strategies to a moderate or great extent,* by various characteristics: 1997

Characteristic	Standard error of teaching strategy used to a moderate or great extent					
	Active discussion	Collaborative or cooperative work	Computers or other advanced technology	Hands-on learning	Role playing	Student projects
All kindergarten through fifth-grade teachers	0.9	1.6	1.1	1.7	1.6	1.4
Instructional level						
Kindergarten-second	1.2	1.9	1.1	2.0	2.3	2.0
Third-fifth	1.2	2.4	1.5	2.5	2.3	2.3
Level of support available from school						
0-3 resources	1.5	2.1	1.2	2.4	2.8	2.3
4-6 resources	1.1	2.0	1.5	1.7	2.2	2.0
Most formal training to teach about nutrition						
None	4.2	5.5	2.4	6.4	5.0	4.0
Research on own	1.4	2.0	1.7	3.0	2.4	2.7
Inservice	1.8	4.1	2.6	4.1	2.9	3.7
College coursework	1.4	2.5	1.6	2.3	2.7	2.5

*These response categories were combined for this analysis.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K-5," FRSS 60, 1997.

Table 10a.—Standard errors of percent of public elementary school teachers, K-5, who taught nutrition, who used various teaching strategies, by various characteristics: 1997

Characteristic	Standard error of teaching strategy				
	Computer or other advanced technology	Field trips	Guest speakers	Special events (e.g., fairs, plays)	Team teaching
All kindergarten through fifth-grade teachers.....	1.7	1.3	2.0	1.6	1.7
Instructional level					
Kindergarten-second	2.3	1.5	2.4	2.0	2.1
Third-fifth	2.5	2.2	2.9	2.7	2.4
Level of support available from school					
0-3 resources	2.3	2.0	2.7	2.0	2.2
4-6 resources	2.2	2.0	2.4	2.3	2.5
Most formal training to teach about nutrition					
None	5.4	4.2	5.3	5.5	5.5
Research on own	2.4	2.5	2.8	2.6	2.4
Inservice	4.1	3.9	4.5	3.9	3.7
College coursework	2.6	2.3	3.1	2.5	2.4

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K-5," FRSS 60, 1997.

Table 11a.—Standard errors of percent of public elementary school teachers, K-5, who taught nutrition, who reported various barriers to cooperation with their school meals program staff in providing nutrition education: 1997

Barrier	Standard error of extent of barrier to cooperation (if any barriers)			
	Not at all	Small extent	Moderate extent	Great extent
No onsite kitchen.....	1.3	0.6	0.6	0.8
Way meals program is operated (e.g., outside vendor, satellite kitchen).....	1.5	0.8	0.8	1.0
Unsure what activities possible	1.4	1.0	1.3	1.1
Insufficient instructional time.....	1.7	1.0	1.4	1.3
Insufficient time on the part of the meals program staff	1.6	0.8	0.9	1.3
Classroom and meals program schedules hard to coordinate.....	1.7	1.0	1.1	1.4
Lack of administrative approval or support.....	1.4	1.0	0.8	0.7
Lack of interest by the meals program staff	1.5	1.0	0.8	1.1

NOTE: Forty-eight percent of teachers reported no barriers to cooperation with the school meals program staff.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K-5," FRSS 60, 1997.

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Table 12a.—Standard errors of percent of public elementary school teachers, K-5, who taught nutrition, who reported no barriers to cooperation with their school meals program in providing nutrition education, and percent who reported barriers to a great extent, by various characteristics: 1997

Characteristic	No barriers (s.e.)	Standard error of barrier to a great extent (if any barrier)							
		No onsite kitchen	Way meals program is operated	Unsure what activities possible	Insufficient instructional time	Insufficient time on part of meals program	Schedules hard to coordinate	Lack of administrative approval or support	Lack of interest by meals program staff
All kindergarten through fifth-grade teachers	1.6	0.8	1.0	1.1	1.3	1.3	1.4	0.7	1.1
Instructional level									
Kindergarten-second	2.1	1.0	1.2	1.5	1.4	1.5	1.7	0.9	1.3
Third-fifth	2.4	1.4	1.5	2.0	2.1	2.0	1.7	1.1	1.4
Geographic region									
Northeast	3.8	2.1	2.2	2.6	2.8	3.7	4.2	1.8	3.0
Southeast	3.0	1.1	1.2	2.1	2.0	2.4	2.3	1.2	1.6
Central	3.5	2.0	2.0	2.5	2.9	2.8	2.3	1.3	1.7
West	2.9	1.7	1.8	2.1	2.2	2.3	2.1	1.8	2.1

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K-5," FRSS 60, 1997.

Table 13a.—Standard errors of percent of public elementary school teachers, K-5, who reported they or their schools used various strategies to involve parents in the nutrition education of their children: 1997

Strategy	Standard error of extent of use			
	Not at all	Small extent	Moderate extent	Great extent
Including parents in homework assignments.....	1.2	1.4	1.2	1.1
Sending home educational materials.....	1.2	1.7	1.4	0.9
Inviting parents to attend nutrition classes.....	1.1	0.8	0.7	0.4
Inviting parents to attend special events.....	1.6	1.1	1.2	1.1
Inviting parents in nutrition careers to speak to class.....	1.3	1.2	1.1	0.8
Asking parents to give in-class demonstrations.....	1.5	1.2	1.0	0.5
Asking parents to send healthful snacks to school.....	1.3	1.1	1.2	1.5
Offering nutrition workshops or screening services for parents.....	1.2	1.0	0.6	0.3

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K-5," FRSS 60, 1997.

Table 14a.—Standard errors of percent of public elementary school teachers, K-5, who reported they or their schools used various strategies to any extent to involve parents in the nutrition education of their children, by various characteristics: 1997

Characteristic	Standard error of strategy				
	Including parents in homework assignments	Sending home educational materials	Inviting parents to attend special events	Inviting parents in nutrition careers to speak to class	Asking parents to give in-class demonstrations
All kindergarten through fifth-grade teachers.....	1.1	1.2	1.7	1.3	1.5
Geographic region					
Northeast	3.0	2.7	3.3	2.6	3.2
Southeast	2.2	2.5	2.4	2.8	3.2
Central	2.1	2.6	3.8	3.4	3.6
West.....	2.2	2.2	3.1	2.8	2.6
Level of support available from school					
0-3 resources	2.0	1.8	2.3	1.8	2.1
4-6 resources	1.6	1.7	2.2	1.7	2.0
Most formal training to teach about nutrition					
None	4.2	4.6	5.0	4.4	4.0
Research on own	2.4	1.7	1.7	1.9	2.1
Inservice	3.3	3.2	3.2	3.9	3.7
College coursework.....	1.5	2.4	2.8	2.8	3.1

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K-5," FRSS 60, 1997.

Table 15a.—Standard errors of percent of public elementary school teachers, K-5, who taught nutrition, by the quality of instructional materials currently in use for nutrition education: 1997

Quality measure	Standard error of extent statement is true			
	Not at all	Small extent	Moderate extent	Great extent
Materials are up to date	0.7	1.3	1.6	1.5
Materials are age appropriate	0.4	1.0	1.3	1.4
Students find materials appealing	0.4	1.1	1.6	1.5
Enough materials for all students	1.1	1.1	1.3	1.0

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K-5," FRSS 60, 1997.

Table 16a.—Standard errors of percent of public elementary school teachers, K-5, who taught nutrition, by the extent to which they used nutrition education materials they found or developed on their own, by various characteristics: 1997

Characteristic	Standard error of extent to which used materials found or developed by teacher			
	Not at all	Small extent	Moderate extent	Great extent
All kindergarten through fifth-grade teachers	0.9	1.5	1.5	1.7
Instructional level				
Kindergarten-second	0.9	1.9	2.1	2.2
Third-fifth	1.4	2.2	2.2	2.3
Level of support available from school				
0-3 resources	1.2	1.8	1.9	2.3
4-6 resources	1.2	1.8	2.2	2.1
Most formal training to teach about nutrition				
None	4.2	5.3	5.5	5.9
Research on own	1.5	2.3	2.6	2.4
Inservice	2.5	4.2	4.1	3.1
College coursework	1.2	2.3	2.2	2.9

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K-5," FRSS 60, 1997.

Table 17a.—Standard errors of percent of public elementary school teachers, K-5, by the extent to which various instructional materials would be useful to them in nutrition education, by instructional level: 1997

Instructional level/type of material	Standard error of extent to which materials would be useful			
	Not at all	Small extent	Moderate extent	Great extent
All kindergarten through fifth-grade teachers				
Teacher materials (e.g., curriculum guides or trade books)	0.7	1.2	1.4	1.4
Textbooks	1.4	1.2	1.5	1.2
Supplementary student materials (e.g., worksheets).....	0.9	1.3	1.3	1.2
Publications (e.g., newsletters, magazines, pamphlets).....	0.9	1.0	1.6	1.2
Student assessment materials.....	1.1	1.3	1.4	1.1
Manipulatives and laboratory materials.....	0.8	0.8	1.1	1.1
Computer software.....	1.0	1.2	1.3	1.7
Audio and visual aids (e.g., films, videotapes, posters)	0.6	0.9	1.3	1.5
Kindergarten-second				
Teacher materials (e.g., curriculum guides or trade books)	1.0	1.5	2.2	2.2
Textbooks	2.1	1.8	1.7	1.5
Supplementary student materials (e.g., worksheets).....	1.3	1.7	1.8	1.7
Publications (e.g., newsletters, magazines, pamphlets).....	1.3	1.8	2.2	1.5
Student assessment materials.....	1.8	1.9	1.8	1.4
Manipulatives and laboratory materials.....	1.0	1.3	1.5	1.9
Computer software.....	1.4	1.6	1.9	2.5
Audio and visual aids (e.g., films, videotapes, posters)	0.6	1.3	1.8	2.2
Third-fifth				
Teacher materials (e.g., curriculum guides or trade books)	1.1	1.7	2.1	1.7
Textbooks	2.0	1.6	2.1	1.9
Supplementary student materials (e.g., worksheets).....	1.2	1.9	2.4	2.1
Publications (e.g., newsletters, magazines, pamphlets).....	1.3	1.8	2.0	1.9
Student assessment materials.....	1.4	1.6	2.0	1.6
Manipulatives and laboratory materials.....	1.1	1.2	1.9	2.0
Computer software.....	1.2	1.6	1.7	1.8
Audio and visual aids (e.g., films, videotapes, posters)	1.0	1.4	2.1	1.8

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K-5," FRSS 60, 1997.

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Table 18a.—Standard errors for figures

	Standard error of percent
Figure 1.—Source of training to teach nutrition reported by public elementary school teachers, K-5: 1997	
Training as an undergraduate or graduate student.....	1.3
Workshops, inservice, or summer institutes.....	1.4
Some other professional development training.....	1.1
Research and reading on own.....	1.0
No training source.....	1.0
Figure 2.—Most formal method used by public elementary school teachers, K-5, to prepare them to teach nutrition: 1997	
Training as an undergraduate or graduate student.....	1.3
Inservice training.....	1.2
Research and reading on own.....	1.4
No training.....	1.0
Figure 3.—Percent of public elementary school teachers, K-5, who taught nutrition, by the placement of nutrition instruction in the curriculum: 1997	
Taught as a separate subject only.....	0.6
Taught integrated into other subjects only.....	1.4
Both taught as a separate subject and integrated into other subjects.....	1.4
Figure 4.—Percent of public elementary school teachers, K-5, who taught nutrition but did not integrate it into history and social studies, and mathematics, by various characteristics: 1997	
History/social studies	
4-6 resources.....	1.8
0-3 resources.....	1.9
College coursework.....	1.7
Inservice.....	2.6
Research on own.....	2.7
None.....	5.4
Mathematics	
4-6 resources.....	1.7
0-3 resources.....	1.9
College coursework.....	1.8
Inservice.....	3.2
Research on own.....	2.3
None.....	5.2
Figure 5.—Percent of public elementary school teachers, K-5, who taught nutrition, who reported their nutrition education instructional materials were high quality, by level of support at the school for nutrition education: 1997	
Materials are up to date	
4-6 resources.....	1.9
0-3 resources.....	1.8
Materials are age appropriate	
4-6 resources.....	1.8
0-3 resources.....	2.3
Students find materials appealing	
4-6 resources.....	2.0
0-3 resources.....	1.9
Enough materials for all students	
4-6 resources.....	1.8
0-3 resources.....	1.7

Table 18a.—Standard errors for figures--continued

	Standard error of percent
Figure 6.—Percent of public elementary school teachers, K-5, who taught nutrition, who reported their nutrition education instructional materials were high quality, by level of training to teach about nutrition: 1997	
Materials are up to date	
College coursework	2.4
Inservice	4.5
Research on own	2.1
None	4.1
Materials are age appropriate	
College coursework	2.4
Inservice	3.9
Research on own	2.6
None	4.3
Students find materials appealing	
College coursework	2.1
Inservice	3.6
Research on own	2.3
None	3.5
Enough materials for all students	
College coursework	1.8
Inservice	3.6
Research on own	1.9
None	3.8

Figure 7.—Percent of public elementary school teachers, K-5, by preferred method for having nutrition education materials distributed to them: 1997

Directly (e.g., through the mail)	1.2
Through training workshops	0.9
Through the school meals program	0.7
Through the school district	0.7
Through the school administration	0.7
Some other way	0.3

Figure 8.—Percent of public elementary school teachers, K-5, who would like to receive inservice training on various nutrition topics: 1997

Active learning strategies	1.9
Collaboration with the school meals program	1.4
Coordinating nutrition education across subjects and across grades	1.1
Involving parents in nutrition education	1.5

NOTE: This survey included kindergarten through fifth-grade teachers.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K-5," FRSS 60, 1997.

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Appendix C

Survey Form

U.S. DEPARTMENT OF EDUCATION
NATIONAL CENTER FOR EDUCATION STATISTICS
WASHINGTON, D.C. 20208-5651

O.M.B. NO.: 1850-0733
EXPIRATION DATE: 1/31/98

**NUTRITION EDUCATION IN U.S. PUBLIC SCHOOLS:
ELEMENTARY TEACHER SURVEY, K-5**

FAST RESPONSE SURVEY SYSTEM

This survey is authorized by law (P.L. 103382). While you are **not** required to respond, your cooperation is needed to make the results of this survey comprehensive, accurate, and timely.

DEFINITIONS FOR THIS SURVEY:

Collaborative or cooperative work - students work together in small groups to solve problems or do projects.

Coordinated school nutrition policy - may address such issues as coordinating nutrition education across subjects and across grades, collaboration between the school meals program and the classroom, and policies on outside food vendors in the school and closed lunch periods.

Coordinating nutrition education across subjects and across grades - refers to the integration of nutrition lessons into subjects such as math and science, and the integration across grades so the lessons at each grade level build on the previous year's lessons.

Hands-on learning - students engage in direct learning experiences by applying their learning to real-life situations or everyday issues and events.

Nutrition education materials - lesson plans, curriculum guides, posters, pamphlets, multimedia, etc., designed to improve health, achieve positive change in dietary habits, and emphasize the relationship between diet and health.

Nutrition education - refers to curricula, courses, lesson plans and units, and activities designed to provide instruction with regard to the nutritional value of foods and the relationship between food and human health.

LABEL

IF ABOVE INFORMATION IS INCORRECT, PLEASE MAKE CORRECTIONS DIRECTLY ON LABEL.

Name of person completing form: _____ Title: _____

Telephone: _____ Fax: _____ E-mail: _____

Best days and times to reach you (in case of questions): _____

PLEASE RETURN COMPLETED FORM TO:

WESTAT
1650 Research Boulevard
Rockville, Maryland 20850

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 1850-0733. The time required to complete this information collection is estimated to average 30 minutes per response, including the time to review instructions, search existing data resources, gather the data needed, and complete and review the information collected. If you have any comments concerning the accuracy of the time estimate(s) or suggestions for improving this form, please write to: U.S. Department of Education, Washington, D.C. 20202-4651. If you have comments or concerns regarding the status of your individual submission of this form, write directly to: National Center for Education Statistics, 555 New Jersey Avenue, N.W., Washington, D.C. 20208.
FRSS Form No. 60, 2/97

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1. This school year (1996-97), have you taught or will you teach lessons about nutrition to your students? (Include lessons taught by invited speakers.)

Yes..... 1 No..... 2

2. Which of the following resources would help improve **nutrition education** in your classroom? For column A, indicate whether each resource is already available to you. For column B, indicate how much potential each resource has to improve **nutrition education**.

	A. Resource already available?		B. Potential to improve nutrition education			
	Yes	No	None	Small	Moderate	Great
a. Ongoing inservice training that focuses on teaching strategies for behavior change.....	1	2	1	2	3	4
b. School food service personnel serving healthy, well-balanced meals in the cafeteria.....	1	2	1	2	3	4
c. Reference materials on nutrition education available at your school.....	1	2	1	2	3	4
d. Support from your school or district for nutrition education as a valid use of instructional time....	1	2	1	2	3	4

3. Do you have the following policies readily available to you at school?

	Yes	No
a. A written policy or guidelines on nutrition education from your school, district, or state.....	1	2
b. A coordinated school nutrition policy.....	1	2

Check your answer to question 1. If you answered "no" to question 1, skip now to question 10. If you answered "yes" to question 1, continue with question 4.

4. About how many total hours will you have spent teaching about nutrition to your students by the end of this school year (1996-97)? (Include both time dedicated specifically to nutrition lessons and time spent on integrated lessons.) _____ hours

5. To what extent do you integrate lessons about nutrition into the following subject areas? (*Kindergarten teachers may skip this question.*)

	Not at all	Small extent	Moderate extent	Great extent
a. Health/physical education.....	1	2	3	4
b. History/social studies.....	1	2	3	4
c. Mathematics.....	1	2	3	4
d. Reading/language arts.....	1	2	3	4
e. Science.....	1	2	3	4
f. Some other subject (<i>specify</i> _____)....	1	2	3	4

6. Do you teach nutrition as a separate subject?

Yes..... 1 No..... 2

7. To what extent are the following things true of the nutrition education materials you use?

	Not at all	Small extent	Moderate extent	Great extent
a. The materials are up to date.....	1	2	3	4
b. The materials are age appropriate.....	1	2	3	4
c. My students find the materials appealing.....	1	2	3	4
d. I have enough materials for all my students to use.....	1	2	3	4
e. Most of the materials are ones I found or developed on my own.....	1	2	3	4

8. To what extent do you use the following teaching strategies for nutrition lessons?

	Not at all	Small extent	Moderate extent	Great extent
a. Active discussion	1	2	3	4
b. Collaborative or cooperative work	1	2	3	4
c. Computers or other advanced technology	1	2	3	4
d. Demonstrations	1	2	3	4
e. Field trips	1	2	3	4
f. Guest speakers	1	2	3	4
g. Hands-on learning	1	2	3	4
h. Lecturing	1	2	3	4
i. Media presentations	1	2	3	4
j. Role playing	1	2	3	4
k. Special events (e.g., fairs, plays)	1	2	3	4
l. Student projects	1	2	3	4
m. Team teaching	1	2	3	4
n. Some other strategy (specify _____)	1	2	3	4

9. To what extent are the following factors barriers to cooperation with your school's meals program in providing **nutrition education** to your students? If you feel there are no barriers, check here ☐ and skip to Question 10.

	Not at all	Small extent	Moderate extent	Great extent
a. No onsite kitchen at this school	1	2	3	4
b. The way the school meals program is operated (e.g., outside vendor, satellite kitchen)	1	2	3	4
c. Unsure what activities are possible	1	2	3	4
d. Insufficient instructional time to fit in activities	1	2	3	4
e. Insufficient time on the part of the meals program staff	1	2	3	4
f. Classroom and meals program schedules hard to coordinate	1	2	3	4
g. Lack of administrative support or approval	1	2	3	4
h. Lack of interest by the meals program staff	1	2	3	4
i. Other barrier (specify _____)	1	2	3	4

10. In this school year (1996-97), to what extent have you or your school used, or do you plan to use, the following strategies to involve parents in the **nutrition education** of their children?

	Not at all	Small extent	Moderate extent	Great extent
a. Including parents in homework assignments	1	2	3	4
b. Sending home educational materials to help parents learn about nutrition or teach their children about nutrition	1	2	3	4
c. Inviting parents to attend nutrition classes	1	2	3	4
d. Inviting parents to attend special events, such as School Lunch Week or tasting parties	1	2	3	4
e. Inviting parents in nutrition-related careers to speak to the class	1	2	3	4
f. Asking parents to give in-class demonstrations	1	2	3	4
g. Asking parents to send healthful snacks to school	1	2	3	4
h. Offering nutrition workshops or screening services for parents ..	1	2	3	4

11. What types of instructional materials (in addition to any you already use) would be useful to you in your nutrition education efforts? Mark the extent to which the following types of **nutrition education materials** would be useful.

	Not at all	Small extent	Moderate extent	Great extent
a. Teacher materials such as curriculum guides or trade books	1	2	3	4
b. Textbooks	1	2	3	4
c. Supplementary student materials such as worksheets	1	2	3	4
d. Publications such as newsletters, magazines, or pamphlets	1	2	3	4
e. Student assessment materials	1	2	3	4
f. Manipulatives and laboratory materials	1	2	3	4
g. Computer software	1	2	3	4
h. Audio and visual aids such as films, videotapes, or posters	1	2	3	4
i. Other materials (specify _____)	1	2	3	4

12. How would you prefer to have **nutrition education materials** distributed to you? Please rank the following in order of your preference from 1 to 6, with 1 = 1st choice, 2 = 2nd choice, etc.

	Rank
a. Through the school meals program.....	_____
b. Through your school's administration.....	_____
c. Through your school district.....	_____
d. Through training workshops.....	_____
e. Directly to you (e.g., through the mail).....	_____
f. Some other way (specify _____).....	_____

13. Are you familiar with Team Nutrition, the U.S. Department of Agriculture initiative to improve the health of students?

Yes 1 No 2

Teacher information

14. What grade or grades do you teach this school year (1996-97)?

Pre-K K 1 2 3 4 5 6 7 8 Ungraded

15. Do you teach a self-contained classroom (i.e., are you responsible for teaching multiple subjects to the same class of students all or most of the day)?

Yes 1 No 2

16. Including this school year (1996-97), how many years have you been teaching at the elementary school level?

17. Have you used any of the following methods to learn how to teach students about nutrition?

	Yes	No	If yes:
a. Workshop, inservice, or summer institute training.....	1	2	#hours _____
b. Training as an undergraduate or graduate student.....	1	2	#courses _____
c. Some other professional development training.....	1	2	#courses _____
d. Research and reading on your own.....	1	2	

18. On which of the following nutrition topics would you like to receive inservice training?

	Yes	No
a. Active learning strategies.....	1	2
b. Collaboration with the school meals program.....	1	2
c. Coordinating nutrition education across subjects and across grades	1	2
d. Involving parents in nutrition education.....	1	2
e. Some other topic (specify _____).....	1	2

19. In your view, what could be done to encourage cooperation and collaboration between classroom teachers and your school meals program in providing nutrition education to students?

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Department of Education
Washington, DC 20208-5652

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